

a threaded portion for engaging bone; and

a roughened region for facilitating osseointegration with said bone and being located on a part of said threaded portion, said roughened region being uniformly acid etched after a native oxide layer had been removed to produce a substantially uniform array of irregularities having peak-to-valley heights not greater than about 10 microns; wherein said head portion includes a top surface, said roughened region beginning at a point about 3 mm below said top surface.

52. (New) A titanium implant to be surgically implanted in living bone, comprising:

a head portion having a non-round fitting; and

a threaded portion including a uniformly roughened titanium metal surface from which a native oxide layer had been substantially removed before being etched to produce a substantially uniform array of irregularities having a peak-to-valley heights ranging from about 0.3 micron to about 10 microns; wherein said head portion includes an upper flat surface, a portion of said implant between said upper flat surface and a point about 3 mm below said upper flat surface being smooth relative to said roughened threaded portion.

53. (New) A titanium device to be surgically implanted in living bone and including a uniform exterior titanium metal surface from which a native oxide layer had been substantially removed and thereafter roughened to produce a substantially uniform array of irregularities having relatively uniform dimensions and peak-to-valley heights of less than about 10 microns, substantial numbers of said irregularities being substantially cone-shaped elements; said device